NDC-B052
Access Control Panel

Installation Manual

NDC-B052

ACCESS CONTROL PANEL

This manual covers installation, programming and utilization of NDC-B052 access control panel. Read this manual carefully prior to installing and programming the unit.

Design Change Disclaimer

Information due to design changes and product improvements in this manual is the subject to change without notice. ITV reserves the right to change the product design any time, that will subsequently affect the contents of this manual.

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Integrated Technical Vision Ltd performs training on the installation, programming and utilisation of NDC-B052 access control panel. For detailed information about training and discussing of your particular requirements to the unit please contact our personnel by the phone numbers below.

It is recommended, for the staff intended for sales and installation of NDC-B052 access control panel to take instruction courses conducted by the company.

Technical support for all products of Integrated Technical Vision Ltd can be obtained at business time by the phones below:

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This support assumes the calls of trained specialists. End users must apply to their dealers or installers before phoning us. This information is available on our web site www.itvsystems.com.ua

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Preface

Primary goals of Access Control System are: identification of a person, confirmation or not confirmation of access, control of movements in the necessary zone. It can provide time and attendance logging, in addition to usual task of restricting individuals' access to certain areas.

All users' access information is gathered by the server, where administrators can retrieve and analyze it. This data provides recording of staff movement within an organization, whether it is a small company or company that employs thousands.

The NDC-B052 access control panel is designated for sophisticated access control and creation of security systems with many access and monitor points. The panel can control up to 64 access points. All access points are attached to NDC-B052 via expansion modules using RS485 bus. Up to 32 modules can be connected to the control panel.

Features

- Supports all Wiegand reader technologies
- Distributed database for independent operation
- Operates in remote site configurations with dial-up
- Card, PIN or card and PIN access support
- On-board lithium battery for data storage
- 4-wire RS-485/RS232
- Ethernet
- Tamper alarm
- Battery status control
- 1 Form C relay
- 1 MB static RAM with battery backup
- 0.5 MB Flash memory
- Global antipassback function
- Built-in buzzer

Specifications

• Outputs	
• One	5 A @ 24 V relay
• Two open drain outputs	0.5 A @ 12V (with multifuse protection)
• Networking	RS485 interface
• Input Voltage	+10…15 VDC
• Voltage ripple	500 mV @ 12 V
• Power consumption:	
• Standby current	100 mA@ 12V
• Maximal current	180 mA@ 12V

- Environmental requirements:
  - Operation temperature 0 °C … +55 °C;
  - Relative Humidity 80% relative at +35°C;
- Physical dimensions:
  - Width 300mm
  - Height 310mm
  - Depth 80mm
  - Weight 2,45 kG
- Nonerasable memory:
  - Identificators up to 20 000
  - Weekly schedules up to 255
  - Time-zones up to 255
  - Holidays up to 255
  - Events up to 80 000

Terms

Access point

Access point is a logical concept of access control system implying control of passing through a door in one direction. It consists of reader, access control panel (or it's part), door supervision devices (like magnetic sensor, RTE etc.) and door locking device. For instance, turnstile with two way passes has two **Access points** – one for entrance and the other one for exit, door of this type is called *double-sided* door. Door with a reader on one side has only one **Access point** – Entry point, and it is called *single-sided* door.

Antipassback

Antipassback function is implemented in NDC-B052 access control panel to prevent the situation when user gives his ID to another person after passing to the premises. If this function is on, NDC-B052 tracks an ID position – Inside or Outside the premises. On any attempt to pass in the same direction twice NDC-B052 denies access and stores "Access Denied, Antipassback" event into the Log.

Antipassback function can be set on, only in case of double-sided door control.

Global Antipassback

This function is similar to local Antipassback, but it works at several access points simultaneously. All access points should be consolidated in a group for Global Antipassback function application.

Code matching

NDC-B052 can arise alarm in case of attempt of code (or ID) matching. Code matching is considered when invalid code (or ID) is entered several times. Valid code entrance clears the counter. This function switching on and number of code entries can be programmed on PC.

Door Sensor

In access control systems various sensors are used to control door status (opened or closed) – magnetic door sensor, sensor of the turnstile rotor position, inductive sensor of car passing through the road barrier, etc.

Door Contact terminal of NDC-B052 is intended for connection of these sensors.

Door time

If door sensor is open, corresponding access switches goes into alarm mode. Alarm is not invoked, if the sensor is opened during Door Time. This interval starts when access is granted and lasts for the programmed time or terminates on break and subsequent shortening of the door sensor.

Downloading

NDC-B052 is to be downloaded after setting all parameters – modes of inputs, outputs, access rights and others on PC. During downloading parameters are rewritten into the access control panel. If you change control panel parameters in your computer, they will not take effect until these parameters are downloaded into the panel.

PIN (Personal Identification Number)

Some readers have built-in keypad. The keypad may be used for PIN (Personal Identification Number) entry in this case. It can be both self-dependant or used as

an additional code after ID passing. When PIN is programmed as the additional code, NDC-B052 waits for PIN entry after card passing.

Proximity Identificator

In access control systems each user has ID (identificator) with the unique code. Proximity IDs may be in shape of plastic card, key trinket, etc.

Reader

Readers are devices assigned for reading information from IDs and transmitting it to the control panel

There are several types of IDs and readers for them. Watch that reader and control panel use the same interface. NDC-B052 utilizes Wiegand interface.

RTE (Request to Exit)

To exit from the premises with a single-sided door, the button wired to the control panel is used. This button is called RTE (Request To Exit) button. If someone opens the door otherwise than pressing RTE button – by re-energizing locking device, opening lock with a key etc., the Door Forced Open event arises.

RTE button may be used for remote door opening as well.

Schedules

NDC-B052 is capable to store up to 255 time zones. 255 week schedules and 255 holidays.

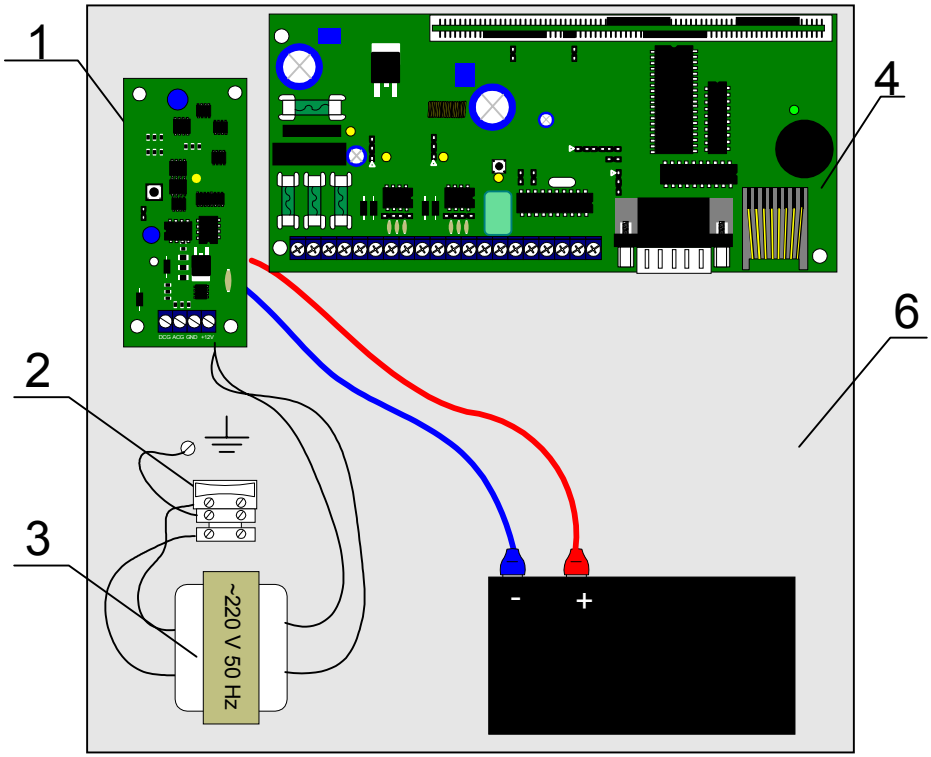
Moreover NDC-B052 can store several “floating” schedules, based on a period different to a week. The number of such “floating” schedules depends on the period length.

Several IDs' access

To access the high security premises the presence of more than one person may be required . NDC-B052 allows assigning of up to 15 groups of people with access rights. The access is granted only in case when one person from each group is present. For instance you have the room which can be attended only by the personnel of R&D department escorted with guard. You can form two groups for this access – group of R&D employees and group of guards. The access is granted if two IDs from different groups are passed to the reader – one belongs to R&D department employee and the other one – to a guardian.

General Configuration

The layout of NDC-B052 is shown on Diagram1 below.



1 - battery backup PCB
2 - terminal block with safety fuse
3 - 220V, 50Gz transformer
4 - panel PCB
5 - battery

Diagram1. General view of NDC-B052 with front cover off.

Wiring Configurations

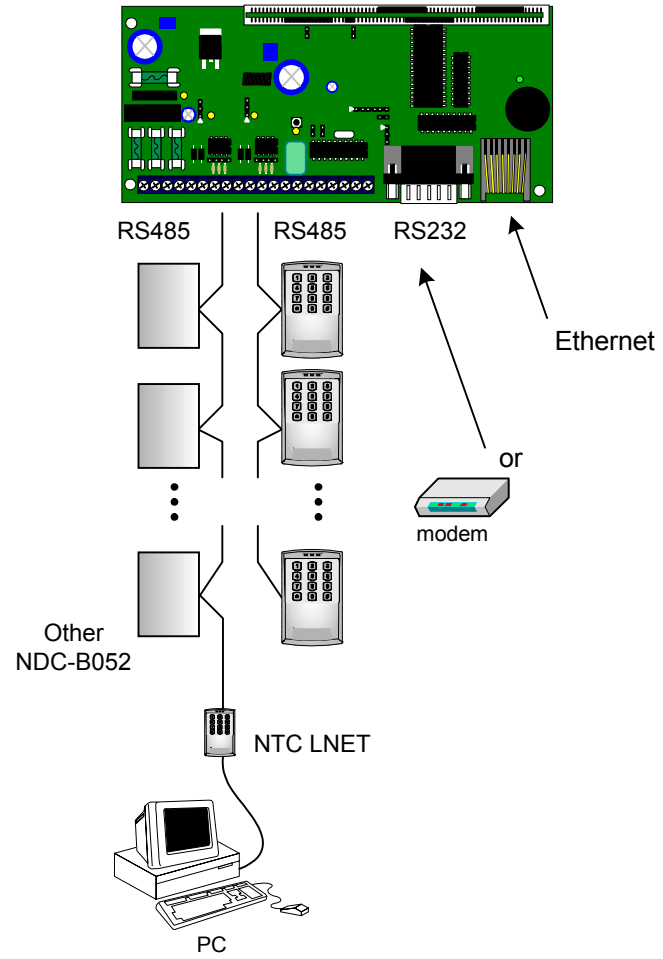


Diagram2.

Controls and connections on board

Terminals assignment

Terminal	Function	Description
~ 9V ~	~ 9V	~9 V power connection
- 12V +	+12 V	+12 V power connection
GND	GND	First RS485 port
1UT	+12 RS485	
1A+	RS485-A	
1B-	RS485-B	
GND	GND	Second RS485 port
2UT	+12 RS485	
2A+	RS485-A	
2B-	RS485-B	
GND	GND	
COM	Common	Relay contacts
NO	Normally open	
ACG	Battery good	Power and battery status control intputs
PWG	Power good	
TMP	Tamper	Tamper contact connection
GND	GND	
GPI	General Purpouse Input	Programmable intput

Jumpers and LEDs:

SW1 - Panel Reset button;

JP5, JP6, JP7 and JP8 - jumpers for RS485 load connection;

JP3 - programming and resetting

LED1 - switches on at FUSE1 blow;

LED2 - switches on at relay output activating;

LED3 - 1 port indicator, indicates TX with red light and RX with green light ;

LED4 - 2 port indicator, indicates TX with red light and RX with green light;

LED5 - power indicator.

FUSEs:

FUSE1 - power supply output fuse;

FUSE2 - power input fuse from direct current source;

FUSE3 and FUSE4 - power inputs fuses from alternating current source.

Control Panel Operation

Control panels are supplied unloaded without expansion modules.

It is necessary that you should connect expansion modules, readers and other devices to NDC-B052 to organize security and access control system. Besides, you should download the panel using Golden Gate software.

Panel can control up to 64 independent access points. Each access point may be in one of four modes: main mode, alarm, blocked or free pass. Free pass mode has the highest priority, as the panel switches to this mode in case of fire; then go blocked, alarm and main modes.

Main Mode

The controller grants or denies access to cardholders in this mode. In the Main mode reader LEDs blink red.

Access with ID

To access the premises cardholder passes identificator to the reader. If it is valid the panel grants access, unlocks the door and green LED switches on.

Access with ID and PIN

To access the premises cardholder passes ID to the reader. The panel checks the necessity of PIN entering and if it is necessary, LED blinks yellow that means PIN entry is awaited. After valid PIN entry door is unlocked, and reader LED lights green.

Using RTE

To go out of the premises with a single-sided door user must depress (press & release) Request to Exit button. Reader LED lights green.

Access Denial

Access may be denied by the following reasons:

- Panel is not downloaded (reader LED does not light or blink)
- ID is not registered (reader red LED and buzzer switch on for a second)
- ID time has expired (reader red LED and buzzer switch on for a second)
- Access is prohibited at present moment according to a schedule (reader red LED and buzzer switch on for a second)
- Attempt of code matching (if the function is switched during programming)
- Attempt of passing in the same direction twice (reader red LED and buzzer switch on for a second, if Antipassback function is on)
- Lost or blocked ID is passed (reader red LED and buzzer switch on for a second)
- Panel is in the Alarm mode (red LED lights uninterruptedly)
- Panel is in the Blocked mode (red LED lights uninterruptedly)

Alarm Mode

In the alarm mode reader LEDs light red constantly.

Access point switches into alarm mode for the following reasons:

- In case of door ajar
- Attempt of access with lost ID

- Door is opened too long (door time expired)

- Attempt of code matching (if the function is switched on during programming).

Alarm output is activated, but the mode does not switch on in case of panel box tampering attempt.

You can disable control panel switching into Alarm mode in case of "Door opened too long" event, the inhibition is set for each access point separately.

In alarm mode panel activates outputs assigned for BELL and ALARM. Alarm output is deactivated when panel switches into the mode different to alarm mode and BELL output is deactivated after the programmed time.

If access point is in the alarm mode, passing through this point is prohibited. RTE button unlocks the door.

Pass the ID with “Alarm OFF” sign to switch alarm mode off or do it with command from computer.

Free Pass Mode

Sometimes the situations arise when a door should be open for free pass to everyone, e.g. in case of fire, earth quake or any other disaster. In such cases the panel switches to the Free Pass mode.

In this mode reader LED blinks green and yellow alternately.

Access point switches into the Free Pass mode with the operator command or if the input, programmed as “Free Pass” is broken.

Access point is in Free Pass Mode until this input is shorted or the operator cancels the mode.

While Access point is in Free Pass mode locking device is locked and the panel does not respond to IDs' passing, PIN entry or RTE button pressing.

The control panel allows you assigning of Blocking function to an input for one access point A, B or two access points together (A + B).

Blocked Mode

The Blocked Mode is designated for situations when access to the premises should be prohibited to everyone, in case of security alarm for instance. When Access point is in the Blocked mode access is granted only to cardholders of IDs with “Security Service” sign. Door cannot be unlocked with RTE button.

Reader LED blinks red and yellow alternately during Blocked mode time.

Access point switches into the Blocked mode with operator command or when the input, programmed as “Blocking” is broken. Access point remains in the blocked mode until this input is shorted or the operator cancels the mode.

The control panel allows you assigning of Blocking function to an input for one access point A, B or two access points together (A + B).

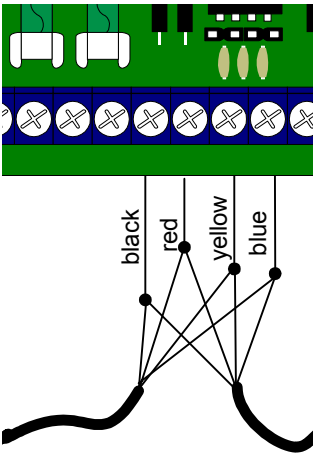
Mounting

NDC-B052 is supplied in a metal frame with the built-in battery backup. The access control panel is to be mounted in place easy to servicing .

To mount the panel on the wall proceeds as follows:

- open the front cover,
- mark places for fixing holes using the back plate as a template,
- pass the wires through the holes on a back plate,
- fasten the frame,
- connect the wires.

RS-485 Interface



NDC-B052 has two serial ports with RS485 bus receiver-transmitters. First port (GND, 1UT, 1A+, 1B- contacts) is intended for PC connection. Second port (GND, 2UT, 1A+, 1B- contacts) is intended for expansion modules and subordinate panels' connection.

The range of RS-485 bus is up to 1200 meters. The number of panels or expansion modules is up to 32.

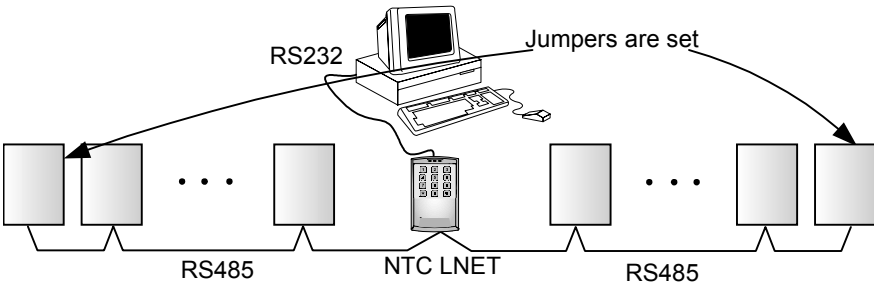
RS-485 port is protected against overvoltage (60V) and cross polarization.

Unshielded four-wire cable may be used for RS-485 wiring. For maximal range of 1200 meters please use 0.4 mm 2-cross section wire. 0.2 mm 2-cross section wire will provide the range of 500 meters .

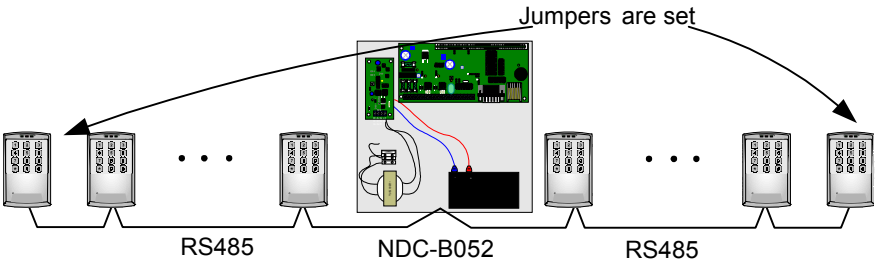
On the first and last panel in the drop line short jumpers JP5, JP6 for the first port and JP7, JP8 for the second port to add the resistive load.

Take care of proper grounding of all panels in the network.

Setting jumpers in expansion modules bus (connected to the first serial port).



Setting jumpers in panels bus (connected to the second serial port).



RS-232 Interface

First consecutive serial port has also RS-232 bus receiver-transmitter (DB9 jack) in addition to RS485 bus receiver-transmitter. NDC-B052 access control panel can be connected to PC straight via null-modem cable or modem using this output.

Ethernet Port

The NDC-B052 access control panel is provided with UTP jack for Ethernet connection. UDP protocol is supported.

Setting id and IP Address

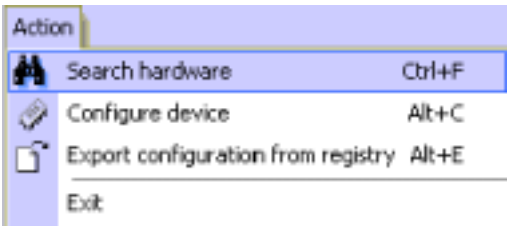
All panels in RS-485 drop line are connected consecutively. They should have unique number (id) for their joint operation. It is also necessary that you should set IP address and subnet mask for local net operation. Address, subnet and 'id' settings for RS485 drop line are executed using PC connected to the first port (DB9 jack) with null-modem cable.

Switch off the power, set JP3 jumper, connect null-modem cable to DB9 jack (see Diagram 2).

Switch on the power of the panel, within 40 seconds the panel switches to the main mode. In process of launching LED4 blinks and then switches off. Now start ggipcfg.exe program.

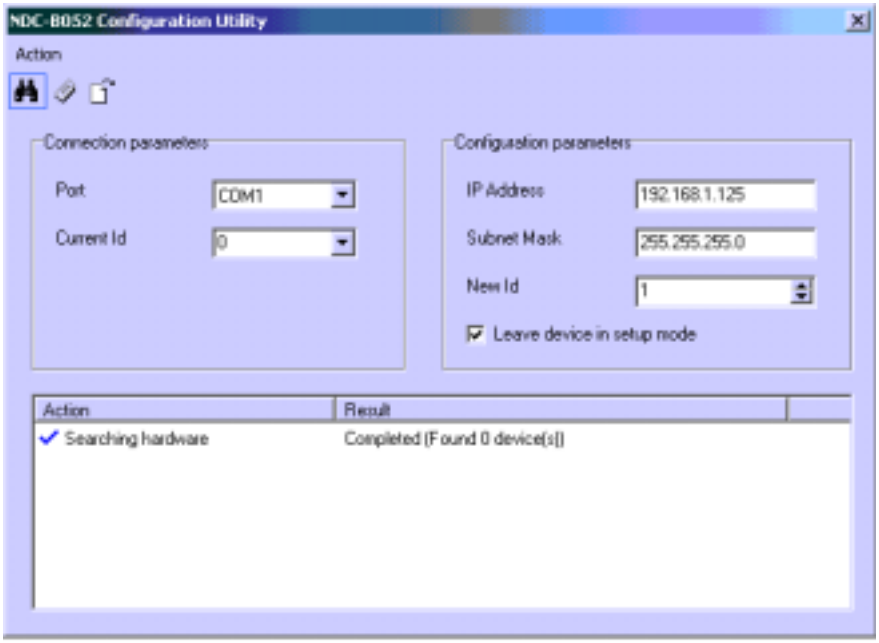
Choose 'Action' > 'Search hardware' menu items and press button. Search of devices will be executed on all COM ports. In the bottom part of program window the result of search will be displayed.

Data exchange between PC and NDC-B052 during search will be seen on blinking of LED4.



If the controller (controllers) are not found out by the program, repeat search. Observe that during search LED3 is not blinking.

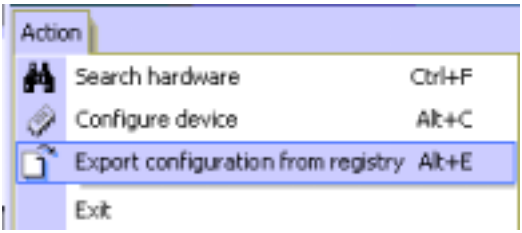
When a control panel (panels) is found select the necessary COM port and controllers ID in 'Hardware' panel. In 'Configuration parameters' the current configuration of the control panel is displayed.



Choose necessary configuration changes and load them to the controller. To do this select 'Actions' > 'Configure device' menu items and press button

In the bottom part of program window result of loading will be displayed. If testing of device passed successfully, and loading is not executed - the message "Configuration is not loaded, controller is in operation mode" appears, which means JP4 crosspiece is not set. Set the crosspiece and repeat actions on configuration loading.

If loading of the controller (controllers) is executed on the computer where "Golden Gate" software is not installed it will be necessary to export the data about controller (controllers) configuration or



press button, transfer obtained .reg file to the PC with installed 'Golden Gate' program and execute merge to system registry.

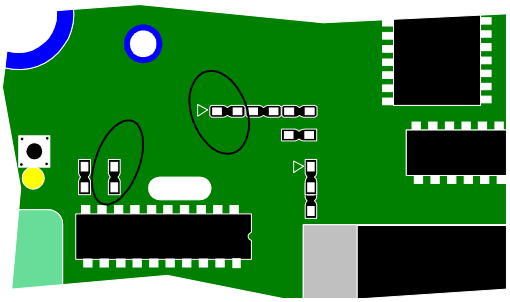
Resetting hardware to factory defaults

Set JP3 jumper when power is off. Short two left XP1 contacts.

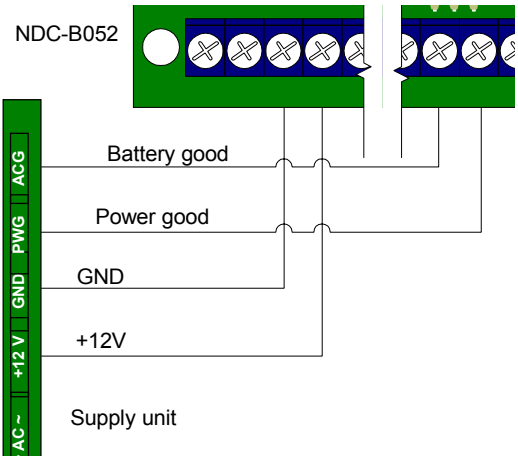
Switch on the panel power.

Switch off the power and take off both jumpers.

The panel switches into unloaded state, all settings and tables are deleted.



After resettling to factory defaults panel's id is set to 0 value.



Power Supply Wiring

PSU 1,5 power supply unit with battery backup, manufactured by ITV Ltd, use is recommended. This power supply unit provides +12V power rated at 1,5A. The 7AH battery may be used in it. PSU 1,5 has outputs for power and battery status indication.

Operating voltage range is 10.8V...15V. Maximal permissible voltage is 16V.

Limited Warranty

Integrated Technical Vision Ltd warrants that for a period of eighteen months from the date of purchase, the product shall be free of defect in materials and workmanship under normal use and that in fulfillment of any breach of such warranty, Integrated Technical Vision Ltd shall, at its option, repair or replace the defective equipment upon return of the equipment to its repair depot. This warranty applies only to defects in parts and workmanship and not damaged incurred in shipping or handing, or damaged due to causes beyond the control of Integrated Technical Vision Ltd such as lightning, excessive voltage, mechanical shock, water damage, or damage arising out of abuse, alteration or improper application of the equipment.

The foregoing warranty shall apply only to the original buyer, and is and shall be lieu of any and all other warranties, whether expressed or implied and of all other obligations or liabilities on the part of Integrated Technical Vision Ltd. This warranty contains the entire warranty. Integrated Technical Vision Ltd neither assumes, nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any warranty or liability concerning this product.

In no event shall Integrated Technical Vision Ltd be liable for any direct, indirect or consequential damages. Loss of anticipated profits, loss of time or any other losses incurred by the buyer in connection with the purchase, installation or operation or failure of this product.

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